



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB1998-0985

April 21, 1998

Brian G. Allen
U.S. Department of Transportation
Federal Highway Administration
Western Federal Lands Highway Division
610 East Fifth Street
Vancouver, Washington 98661-3893

RE: Endangered Species Act Section 7 Biological Opinion on
Fish Creek Restoration

Dear Mr. Allen:

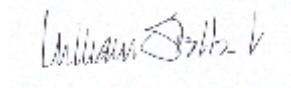
Enclosed is the Biological Opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act on Fish Creek Restoration which will occur on the Mt. Hood National Forest.

The NMFS has determined that the implementation of the proposed actions is not likely to jeopardize the continued existence of proposed as threatened Lower Columbia River steelhead. This determination was based on a number of conclusions and assumptions stated in the Opinion. In summary, there will be short-term effects (sedimentation to the streams, but these have been minimized); however there will be long-term benefits e.g. reduction of landslide potential.



Questions regarding this letter should be directed to Michelle Day of my staff at (503) 231-6938.

Sincerely,

A handwritten signature in dark ink, appearing to read "William Stelle, Jr.", is centered below the word "Sincerely,". The signature is written in a cursive, slightly slanted style.

William Stelle, Jr.
Regional Administrator

Enclosure

cc: Joe Moreau, Mt. Hood National Forest

Endangered Species Act - Section 7
Consultation

BIOLOGICAL OPINION

Fish Creek Restoration

Agency: U.S. Department of Transportation, Federal Highway Administration

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: April 21, 1998

Refer to: OSB1998-0985

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I. Background

In January 1998, streamlining consultation level 1 team members Joe Moreau, Mt. Hood National Forest, and Michelle Day, National Marine Fisheries Service reviewed the Fish Creek Restoration project.

The specific Evolutionarily Significant Unit (ESU)¹ covered in this Biological Opinion is the Lower Columbia River (LCR) steelhead (*Oncorhynchus mykiss irideus*) which is listed as threatened (March 19, 1998, 63 FR 13347). Steelhead are found in Fish Creek as spawning adults and as rearing juveniles, which remain in the stream throughout the year. The objective of this biological opinion is to determine whether the subject project is likely to jeopardize the continued existence of the Lower Columbia River Steelhead. Although the Consultation evaluates effects of the proposed actions on this species habitat, critical habitat has not been proposed or designated. Therefore conclusions regarding destruction or adverse modification of critical habitat are not included.

II. Proposed Actions

Three major storm events occurred within the Fish Creek watershed in 1995 and 1996. Inventories following the flood included a landslide inventory, fish habitat surveys, channel geometry surveys, debris-flow prone drainage maps, stream temperature measurements and historic photo reconstruction of stream channel changes. This flooding coupled with a severely constrained road maintenance program, resulted in some of the highest incidences and concentrations of road and slope failure in the Cascades. A total of 236 landslides were inventoried in this 30,000 acre watershed. Although mass wasting and debris routing are dominant and natural processes within the Fish Creek ecosystem, both the historical rate of landslides and character of landslide material has been altered by management activities (old roads constructed by side-casting bed material and timber management practices).

The Federal Highway Administration and the Mt. Hood National Forest (FS) are working together on this project. The Federal Highway Administration will be responsible for implementation of the road repairs and obliteration/abandonment work. The objective of this proposal is to prevent further deterioration of watershed conditions and impacts to fish and water quality in the short term, and to promote rapid restoration of riparian and fish habitat conditions. The proposed action would be implemented over a 5 year period and involves the following.

1. Aggressively repair road drainage to prevent additional landslides in the short term prior to decommissioning roads. Increase the level of road maintenance activities and accomplishments for this watershed.

¹For the purposes of conservation under the Endangered Species Act, an Evolutionarily Significant Unit (ESU) is a distinct population segment that is substantially reproductively isolated from other conspecific population units and represents an important component in the evolutionary legacy of the species (Waples 1991).

2. Decommission 105 miles (approximately 75%) of roads in the Fish Creek watershed. Restoration of stream crossings, provision of turnarounds at road closure terminus, and pull back and recontour of unstable fill material will be included in the decommissioning.
3. Restore riparian health and improve stream temperatures through reforestation and revegetation of landslides, planting of tributary streams, and thinning to promote large, long-lived trees.
4. Thirty-nine miles of roads would be repaired and remain open. The majority of these roads are on the ridges of the Fish Creek drainage and connect to other areas outside the drainage.
5. Selectively construct stream channel fish habitat structures that reflect historic conditions and promote channel stability, such as log jams to reconnect historic side channels. The implementation over a 5 year period will allow for monitoring and design modifications. Through an analysis of the Fish Creek watershed, the Forest Service determined that the quality of large woody debris was below that of historic conditions to the point that it was not functioning properly (USDA-FS 1997). In addition to this short-term approach of placing habitat structures, there are actions (as described in this section) that will be taken to restore the upslope processes that would contribute desired future large woody debris.
6. Limit timber management in most of the watershed to selective tree harvest using aerial logging. No regeneration harvest or commercial thin harvests would occur in the immediate future. An existing decision to harvest by commercial thinning in the Fish Creek watershed would be withdrawn.

In general, all restoration projects have been prioritized to start at the top of the watershed and work their way down to the valley bottom to ensure that hillslope stability occurs upslope of projects to improve the probability of success for the lower treatments.

There are numerous measures to reduce impacts to fish and their habitat. No fish habitat restoration projects will occur between October 1 and July 15 to protect incubating eggs unless Oregon Department of Fish and Wildlife biologists concur that fish are not spawning. No operations for road closure projects, road cut and fill repair projects, or culvert replacement projects will take place between October 1 and June 30 to limit the likelihood of surface erosion and transport, and reduce the intensity and duration of anticipated short-term turbidity increases. For stream crossing reconstruction during road closure projects, in-stream sediment barriers or settling devices will be installed to capture and reduce down-stream transport of fine sediments. Bare soils will be revegetated to reduce erosion. Biodegradable erosion control mats will be used at stream crossing reconstruction sites and steep, unstable slopes. Effective ground cover would be installed prior to October 1 of each year. Fish passage will be provided at crossing replacements on all known fish-bearing streams. Culvert replacements, bridges, and other stream crossings will be designed to accommodate at least the 100-year flood event, including associated bed load and debris where there is a high risk of debris flows.

There will also be site-specific “Spill Prevention Control and Countermeasure Plan” for project sites and staging areas.

Monitoring will occur on both the hillslope treatments and in-channel treatments. Hillslope monitoring will include photo points of a variety of rehabilitated sites (road recontouring, stream restoration, high risk roads, revegetated riparian areas) to determine success of treatments. The FS’s current fish habitat, fish population, and large woody debris inventories will continue and channel cross sections taken in 1997, will be monitored following a substantive storm event (10+ year flow) to determine channel changes.

III. Biological Information and Critical Habitat

The listing status and biological information for LCR steelhead are described in Attachment 1. Critical habitat has not yet been designated or proposed for this species.

IV. Evaluating Proposed Actions

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by its implementing regulations (50 CFR § Part 402). NMFS discusses the analysis necessary for application of these standards in the particular contexts of the Pacific salmonids in Attachment 2. This analysis involves the following steps: (A) define the biological requirements of the species; (B) evaluate the environmental baseline relative to the species' current status; (C) determine the effects of the proposed or continuing action on the species; (D) determine whether the species can be expected to survive with an adequate potential for recovery under the effects of the proposed or continuing action, the environmental baseline and any cumulative effects, and considering measures for survival and recovery specific to other life stages; and (E) identify reasonable and prudent alternatives to a proposed or continuing action that is likely to jeopardize the continued existence of the species.

A. Biological Requirements

The first step in the method the NMFS uses in applying the ESA standards of Section 7(a)(2) to Pacific salmonids is to define the species' biological requirements that are most relevant to each consultation. The NMFS finds that these biological requirements are best expressed in terms of environmental factors that define properly functioning freshwater aquatic habitat necessary for the survival and recovery of LCR steelhead. Individual environmental factors include water quality, habitat access, physical habitat elements, river channel condition, and hydrology.

These are measurable variables, with properly functioning values determined by the best available information as those necessary for sufficient prespawning survival and distribution, spawning success, egg-to-smolt survival, smolt emigration survival and timing, and smolt condition to allow the long-term survival of the species. Properly functioning watersheds, where all of the individual factors operate

together to provide healthy aquatic ecosystems, are necessary for the survival and recovery of these species. This information is discussed further in Attachment 1.

B. Environmental Baseline

The environmental baseline is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species or its habitat and ecosystem (NMFS and USFWS 1996). The environmental baseline for the action area covered by this consultations is located within the Fish Creek watershed which is within the Clackamas watershed.

The general environmental baseline affecting Pacific salmonids has been described in various documents. The report of the Forest Ecosystem Management Assessment Team (FEMAT 1993) provides a regional assessment of aquatic ecosystems within the range of the northern spotted owl (including the range of LCR steelhead), particularly with regard to land management actions. Chapter V of FEMAT (1993) focuses on current aquatic habitat conditions and the effects of degraded habitat on fish populations. Page V-2 notes that "[a]quatic ecosystems in the range of the northern spotted owl exhibit signs of degradation and ecological stress." Many factors such as dams, overharvest, excessive predation, disease, artificial propagation, poor ocean conditions, and the destruction and alteration of habitat have been implicated in the decline of Pacific salmonids. Aquatic habitat degradation has resulted from a wide range of land- and water-use practices including timber harvest, road construction, mining, grazing, agriculture, construction and operation of dams, irrigation, and flood control (Busby *et al.* 1996; Spence *et al.* 1996). These activities occur on National Forest lands within the LCR steelhead ESU.

In general, these activities have: (1) reduced connectivity between streams, riparian areas, floodplains, and uplands; (2) significantly increased sediment yields, leading to pool filling and reduction in spawning and rearing habitat; (3) reduced or eliminated instream replenishment of large woody debris which serves to trap sediment, stabilize stream banks, form pools, and provide cover; (4) reduced or eliminated vegetative canopy that minimizes stream temperature fluctuations; (5) reduced stream complexity by causing streams to become straighter, wider, and shallower which reduces spawning and rearing habitat and increases temperature fluctuations; (6) altered peak flow volume and timing; (7) altered water tables and base flow; and (8) contributed to degraded water quality by adding toxicants through mining and pest control (FEMAT 1993; Rhodes *et al.* 1994; Spence *et al.* 1996).

The Clackamas River drains into the Willamette River below Willamette Falls near Oregon City, Oregon. Three hydroelectric projects are operated on the lower portion of the mainstem downstream of the FS boundary. About 70 percent of the watershed is managed by the Mt. Hood National Forest and 2 percent by the Salem District Bureau of Land Management (BLM). Approximately 26 percent of the watershed is under private ownership. The remaining 2 percent is owned by the Confederated Tribes of the Warm Springs Indian Reservation with a very small portion (<0.1 percent) managed by

the state of Oregon (ODFW 1992). The Clackamas River and major tributaries, beginning at the Forest boundary upstream to its headwaters, are designated key tier 1 watersheds. Tributary streams under key tier 1 designation are Fish Creek, Roaring River, the Oak Grove Fork Clackamas River, and the Collawash River. ODFW (1992) reports that clear cutting, removal of large woody debris from stream channels, removal of streamside vegetation, and road building have created the greatest impacts in the upper portion of the watershed. The average forest road density for the Clackamas River watershed is 2.8 miles per square mile with Fish Creek being 3.1 (USDA-FS 1994; 1995a; 1995b). Fish Creek and the Collawash River, tributaries to the upper Clackamas River, are considered stronghold areas for LCR steelhead. Fish Creek produces roughly 20 percent of LCR steelhead smolts in the Clackamas watershed (Joe Moreau, USFS, per. comm.).

Using the “Matrix of Pathways and Indicators” (NMFS 1996), the condition of the existing environmental baseline with in Fish Creek was assessed. Substrate, width/depth ratio, and streambank condition are described as “properly functioning.” Chemical contaminants/nutrients, pool quality, off-channel habitat, refugia, floodplain connectivity, peak/base flows, drainage network increase, road density and location, and riparian reserves are described as “at risk.” Temperature, sediment, physical barriers to steelhead, large woody debris, pool frequency, and watershed disturbance history are all described as “not properly functioning” (USDA-FS 1997). For information of recent events in Fish Creek refer to paragraph one under “Proposed Action.”

In summary, the principle ways in which land management policies have contributed to the decline of salmon habitat include: (1) overemphasis on production of non-fishery commodities resulting in losses of riparian and fish habitat; (2) failure to take a biologically conservative or risk-averse approach to planning land management actions when inadequate information exists about the relationship between land management actions and fish habitat; (3) planning land management activities on a site-specific basis rather than on a broader, watershed scale; and (4) reductions in the number, size, and distribution of remaining high-quality habitat areas (such as roadless and minimally developed areas) that serve as biological refugia for anadromous fish subpopulations (FEMAT 1993; Rhodes *et al.* 1994).

V. Analysis of Effects

A. Effects of Proposed Action

The effects of the proposed projects were evaluated using the “Matrix of Pathways and Indicators” (NMFS 1996). The projects will restore (the amount is currently unquantifiable) the following conditions: temperature, sediment, physical barriers, large woody debris, off-channel habitat, streambank condition, road density and location, and riparian reserves. Chemical contaminants/nutrients, substrate, pool frequency, pool quality, refugia, width/depth ratio, floodplain connectivity, peak/base flows, drainage network increase, and disturbance history will be maintained. There will be short-term sedimentation during portions of the project (USDA-FS 1997).

In the long term, possibly decades or centuries, Fish Creek would substantially recover on its own. However, without immediate action and investments, conditions would continue to deteriorate in the short term (10-20 years). Additional landslides, road failures, debris flows, and high level of sediment and turbidity would occur.

B. Cumulative Effects

Cumulative effects are defined as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation" (50 CFR § 402.02). For the purposes of this consultation, the action area is Fish Creek watershed which is located within the Clackamas River Basin, and river reaches downstream of the Forest Service lands that may be affected by the proposed activities.

Within the LCR steelhead ESU, Federal lands comprise approximately 47 percent of the area. A substantial portion of spawning and rearing habitat for LCR steelhead occurs on United States Forest Service and BLM lands. Gradual improvements in habitat conditions for salmonids are expected on these lands as a result of management plan implementation.

The dominant land-use activities on non-Federal lands within the Clackamas River watershed (approximately 26%) are forestry and agriculture (METRO 1997). A small, but increasing, proportion of this non-Federal land is being used for urban growth. Historically, agriculture, livestock grazing, forestry and other activities on non-Federal land have contributed substantially to temperature and sediment problems in the ESU. Conditions on and activities within non-Federal riparian areas along stream reaches downstream of the FS and BLM land presently exert influence on river temperatures and contribute sediment to the habitat of LCR steelhead.

Significant improvements in LCR steelhead production outside of FS and BLM land is unlikely without changes in forestry, agricultural, and other practices occurring within non-Federal riparian areas. NMFS is aware that significant efforts, such as Oregon's Coastal Salmon Restoration Initiative and Washington's Wild Salmonid Policy, have been developed to improve conservation of at-risk salmonid populations (including LCR steelhead) on non-Federal land. NMFS is not aware of any general changes to existing State and private activities within the action area that would cause greater impacts than presently occur to any of the salmonid species considered in this consultation.

Until improvements in non-Federal land management practices are actually implemented, the NMFS assumes that future private and State actions will continue at similar intensities as in recent years. Now that the LCR steelhead ESU is listed under the ESA, the NMFS assumes that non-Federal land owners in those areas will also take steps to curtail or avoid land management practices that would result in the take of those species. Such actions may be prohibited by section 9 of the ESA, and subject to the incidental take permitting process under section 10 of the ESA. Future Federal actions, including the ongoing operation of hydropower projects, hatcheries, fisheries, and land management activities will be

reviewed through separate section 7 processes. In addition, non-Federal actions that require authorization under section 10 of the ESA would be considered in the environmental baseline for future section 7 consultations.

VI. Conclusion

NMFS has determined that, based on the information and analysis described in this consultation, that implementation of the Fish Creek Restoration Project is not likely to jeopardize the continued existence of Lower Columbia River.

Basis for Determinations

Without these projects, conditions will continue to deteriorate over the next 10-20 years. Additional landslides, road failures, debris flows, and high levels of fine sediment and turbidity will occur. The proposed actions will be taken to prevent further deterioration of watershed conditions and impacts to fish and water quality in the short-term, and to promote rapid restoration of riparian and fish habitat conditions. The mitigation measures described earlier will minimize impacts to steelhead and their habitat.

VII. Reinitiation of Consultation

Reinitiation of this conference is required if: (1) new information reveals that effects of the proposed action may affect listed species in a way not previously considered; (2) the action is modified in a way that causes an effect on listed species that was not previously considered; or (3) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR § 402.16).

VIII. References

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the sources of data, information and references used in developing this Conference in addition to that submitted by the Forest Service.

Busby, P.J., T.C. Wainwright, G.J. Bryant, L. Lierheimer, R.S. Waples, F.W. Waknitz, and I.V. Lagomarsino. 1996. Status review of west coast steelhead from Washington, Idaho, Oregon, and California. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-NWFSC-27, 261p.

- Forest Ecosystem Management Assessment Team (FEMAT). 1993. Forest ecosystem management: an ecological, economic, and social assessment report of the Forest Ecosystem Management Assessment Team (FEMAT). Forest Service, National Marine Fisheries Service, Bureau of Land Management, Fish and Wildlife Service, National Park Service, and Environmental Protection Agency. July.
- METRO. 1997. Clackamas River Watershed Atlas. ISBN 0-9662473-0-2.
- National Marine Fisheries Service (NMFS). 1996. Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale. NMFS, Environmental and Technical Services Division, Habitat Conservation Branch, 525 NE Oregon Street, Portland, Oregon. August. 28 pages.
- National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USFWS). 1996. Draft Section 7 Endangered Species Consultation Handbook -- Procedures for Conducting Section 7 Consultations and Conferences. June.
- Oregon Department of Fish and Wildlife (ODFW). 1992. Clackamas River Subbasin Fish Management Plan. ODFW, Portland, Oregon. 174p.
- Rhodes, J.J., D.A. McCullough, and F.A. Espinosa, Jr. 1994. A coarse screening process for potential application in ESA consultations. Columbia River Intertribal Fish Commission. Prepared under NMFS/BIA Inter-Agency Agreement 40ABNF3. December.
- Spence, B.C., G.A. Lomnický, R.M. Hughes, and R.P. Novitzki. 1996. An ecosystem approach to salmonid conservation. TR-4501-96-6057. ManTech Environmental Research Services Corp., Corvallis, OR.
- USDA-FS. 1994. Watershed analysis, Fish Creek watershed. Mt. Hood National Forest, Sandy, Oregon.
- USDA-FS. 1995a. Watershed analysis, upper Clackamas watershed. Mt. Hood National Forest, Sandy, Oregon.
- USDA-FS. 1995b. Collawash/Hot Springs watershed analysis. Final Report. Mt. Hood National Forest, Sandy, Oregon.
- USDA-FS. 1997. Biological Evaluation. Prepared by Tim Shibahara, Mt. Hood National Forest, Sandy, Oregon.

Waples, R. 1991. Definition of a “species” under the Endangered Species Act: application to Pacific salmon. NOAA Tech. Memo. NMFS F/NWC-194. National Marine Fisheries Service, 525 NE Oregon St./Suite 500, Portland, Oregon. 29 p.

IX. Incidental Take Statement

Sections 4(d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

The measures described below are non-discretionary. They must be implemented by the action agency so that they become binding conditions necessary in order for the exemption in section 7(o)(2) to apply. The administrative unit has a continuing duty to regulate the activity covered in this incidental take statement. If the administrative unit (1) fails to adhere to the terms and conditions of the incidental take statement, and/or (2) fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

A. Amount or Extent of the Take

Notwithstanding the NMFS’ conclusion that the Fish Creek Restoration Project is not expected to jeopardize the continued existence of LCR steelhead, there will be short-term impacts and NMFS anticipates more than a negligible likelihood of incidental take of these species from such actions. Even though NMFS expects incidental take to occur due to the actions covered by this Biological Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as these, the NMFS designates the expected level of take as “unquantifiable.”

B. Reasonable and Prudent Measures

NMFS believes that the incidental take of Lower Columbia River Steelhead that is likely to occur as a result of the actions included in this Biological Opinion has been adequately minimized by project design and mitigation. Therefore reasonable and prudent measures to further reduce this incidental take are not necessary.